

WHICH IMPACT DID THE PRIVATISATION OF TELECOMMUNICATION INCUMBENTS IN THE EU HAVE ON COMPETITION

Dr. Ernst-Olav Rühle

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Abstract

Privatisation is often seen as one of the means in order to enhance competition in telecommunication markets, especially in Europe. According to theoretical analyses, privatisation leads to more competition and to a more independent and therefore more effective regulation with a higher degree of "fairness". This development is assumed to take place due to the complete separation of operational and regulatory functions. Further, according to theory, the privatised operators will be more efficient and have lower costs due to better corporate governance and the dividend requirements of the new shareholders. Empirical studies, though, have so far shown heterogeneous results.

In this paper, we examine if there is more competition in EU member states with accelerated / advanced privatisation than in those member states with still state controlled incumbents. The analysis will be undertaken by comparing several competition indicators (penetration rates, price levels and market shares) in the fixed telephony and broadband markets. The result of the paper is that there is only a weak or non-significant correlation between privatisation and competition. This leads us to the conclusion, that privatisation generally doesn't have a positive impact on competition, respectively that the positive outcome exists only to a limited extent

This implies that governments in countries with already implemented sector specific regulation now deciding on privatisation do not necessarily have to fear potential negative effects of privatization on competition but may put also other political and economical goals of the privatization in focus.

1. Introduction

The issue of privatisation of telecommunications' operators has been amongst the most prominently and intensively discussed topics during the phase of the 1990ies and – in the new EU-member states – also for the last few years. Especially due to the fact that telecommunications' markets were opened to competition partly during the 1990ies and very intensively during the last ten years, the parallel policies of opening up markets to competition on the one hand and to privatise the incumbent and formerly monopolistic operator on the other hand led to discussions about whether privatisation and liberalisation could be undertaken in parallel steps or should follow each other sequentially. This was especially important due to the intentions which were seen in connection with privatisation policies which were mostly to raise substantial funds for either the owner (usually the state) or the company itself. Such a policy would of course have direct effect on the competitive conditions of this company in the liberalised market.

Due to the “mixed” interests of government it is an interesting topic to research whether and how privatisation and competition correlate with each other. Of course, one can assume that privatisation also intends to lead to improvements for the company itself. Some examples which can be mentioned here are a potential increase in efficiency of the operators due to decision making processes and production environments which foster an improved and more efficient supply of networks and services. Also, the break up of very hierarchical structures as well as the abolition of “typical” rules of publicly owned companies will lead to a higher internal efficiency of the company and thereby improvements. Besides the financial impact, these were the main arguments for the privatisation of telecommunications' operators and most countries in Europe have followed this path, though with different focus with respect to either the amount of shares which were privatised or the receipt of the funds from privatisation.

In many countries, a balance had to be struck with respect to the parallel introduction of competition, such that the privatised incumbent operator would neither be advantaged (basically the exchange of a public by a private monopoly) or disadvantaged by these two effects. Competition is to be seen as improvement mainly for customers, either by a decrease in prices, a more extensive and user oriented service supply or a strong increase in penetration of specific services. Competition furthermore is measured in terms of the distribution of market shares of the incumbent operators and new entrants.

The paper builds on experiences the authors made in a study for the Slovenian government on the topic of privatization in times of liberalization and the effects of privatisation on the competition in the market.¹ The approach used in that study has been extended to a larger sample. One should also not forget to see the paper in light of the upcoming EU review in which a further reduction of regulation is envisaged. A reduction of regulation might imply

¹ At the time of updating this article in July 2007, the Slovenian government has decided to sell out 49,13% of its ownership in Telekom Slovenije, which is almost 70% at the time.

incentives for countries with state owned telecommunications operators to privatize because such operators could potentially work in a less restricted environment and try to transfer their market power to the liberalized age. Also, the increased availability of investment capital after several difficult years can provide such an incentive.

2. Theory on privatisation and competition

In this section, we will look at the research already conducted regarding privatisation theories and competition. In the last decade, there has been a large number of publications and research regarding the justifications for privatisation and the possible outcomes.

J. Bang writes that “most aspects of privatisation debate are highly polarized and controversial, beginning with the pros and cons with privatization itself”.²

The issue of privatisation has also shown to be highly complex. For a government which has decided to privatise its incumbent, there are at the least the following three issues to be dealt with:³

- How to restructure? (1) commercialisation (e.g. joint-stock company), (2) financial restructuring (handling of the incumbents debts) and (3) operational restructuring (e.g. management issues including excess labour)
- How to regulate the industry after privatisation?
- The sequence and design of the sales process

For this study, we will focus on the impact on the competition and market dynamics (i.e. penetration rates), which is the second issue above, but first, we will briefly look at the justification for privatizing telecom operators and then we will look at the impacts of privatisations on the markets.

2.1 Background

During the major parts of the 20th century, the telecommunication networks and services around the world were organized as state monopolies. For this situation mainly five different reasons can be mentioned as relevant. Firstly, state ownership was an outgrowth of royal power, which was inherited from earlier centuries. Secondly, the state ownership was thought of as a means to overcome obstacles of high fixed costs, developing expensive technologies or to foster industries that were regarded as “vital” for development. In other words, the state was seen as a better promoter for innovation and growth, than the financial markets and the private telecommunication operators. Thirdly, a reason for state ownership has been the bailout of

² J. Bang, „The Role of „Institutions“ in Privatization: Is Efficiency Attainable?“, University of Illinois Urbana-Champaign, 26th of September 2005, p. 7

³ W.L. Megginson „The Financial Economics of Privatization“, Oxford University Press, 2005

failed private industry, mainly during the global depression in the 1930ies. Fourthly, ideological reasons brought up by social democrats, labour and communist parties have justified state ownership of telecommunication operators. Finally, political fractionalisation is given as a reason, i.e. because timely delivery of state-produced goods and managerial positions to political allies.⁴

During the last two decades of the 20th century though, countries all around the world started to investigate privatisation of the national telecommunication operators. The state owned operators were considered as inefficient, the prices high and markets rigid. Also, there are theories showing that privatisation would bring positive effects. Hence, as S. Wallsten summarises, privatisation has been carried through with the purpose to increase service provision, quality and efficiency, but also stemming the flow of public subsidies, which represents scarce public resources badly needed in other areas.⁵

2.2 Positive impact of privatisation

As several privatisations were conducted during the last two decades of the 20th century, there has been extensive academic research carried through, trying to identify the pros and cons of privatisation. In parallel, also competition has been established through regulation. These developments are regarded as complementary, since it would make no sense to replace a public monopoly with a private one, as this would only replace one suboptimal solution with another.⁶

In theory, a privately held company has more pressure from its owners to perform better and produce a higher productivity than a state owned company. This has also been shown in empirical studies. One of these has been conducted by Megginson, Nash and Radenbourgh. In their study with sixty-one countries between 1961 and 1992 for several industries, they presented significant results that profitability, operating efficiency, output, debt holding and dividend payoffs increased after the privatisation.⁷

In another study, the positive effects of privatisation in combination with competition were examined by Ros. By studying 110 countries between 1986 and 1995, he showed that privatised incumbents have higher penetration rates, higher penetration growth rates, higher labour productivity, lower fault rates and lower waiting times (to receive a telephone access line). However, income levels, access charges and usage prices are significantly higher in countries which conducted privatisation.⁸

⁴ W.L. Megginson „The Financial Economics of Privatization“, Oxford University Press, 2005

⁵ S. Wallsten, „Of Carts and Horses: Regulation and Privatization in Telecommunications Reforms“, AEI-Brookings Joint Center for Regulatory Studies, December 2003. p. 2

⁶ Ruhle E-O, „Privatisierung und Internationalisierung von Telefongesellschaften“ 1995, p. 86

⁷ W. Megginson, R. Nash, M. van Randenborgh, “The Financial and Operating Performance of Newly Privatized Firms: AN international Empirical Analysis”, Journal of Finance 49(2), pp 403-452

⁸ A. Ros, “Does Ownership or Competition matter? The effects of Telecommunications Reform on Network Expansion and Efficiency.”, Journal of Regulatory Economics 15, 1999, pp 65-92

2.3 Need for regulation

While there has been a political scepticism towards state ownership, J. Bauer concludes that the academic research has been more nuanced and refers to studies of Thiemeyer, who writes that early theories assumed that the government could utilise state-owned firms as instruments of public policy.⁹ In his literature study, Bauer finds several authors who have “cast doubt on the general superiority of private ownership and demonstrated that the incentive structure of private firms also has serious weakness --- Empirical observations show a great variance, depending on the industry conditions”.¹⁰ The findings according to which the state-owned firms have outperformed privately-held ones are especially based on studies covering non-competitive industries as the telecommunication industry.¹¹ This is a strong indication that regulation is necessary when the state-hold monopolies are privatised.

Wallsten arrives at a similar conclusion in his study focusing on Africa and the 3rd world regarding penetration rates, as he found no significant effect and explains this with the fact that the monopoly equilibrium does not change because the ownership structure does. He draws the conclusion, that the quality of sector regulation probably determines the net effect of privatisation.¹² Also Noll concludes that privatization will result in lower average cost, more efficient pricing, higher rates of investment, and less durable market power, but he also predicts that such effects are contingent on significant government regulation.¹³

This calls for regulation. The introduction of regulation has lead to the situation in many countries in which there is one state-owned or partially state-owned incumbent and a governmentally controlled regulatory authority. This has though raised some concerns that the regulatory authority might be utilised to create disadvantages for the competitors of the incumbent.¹⁴ According to these concerns, the less state involvement in the incumbent, the better it is.

A problem with state-owned firms is that these have been used in the past in order to fulfil other social goals, e.g. the stabilisation of employment or the provision of universal services /

⁹ J.M. Bauer, „Regulation and state ownership: conflicts and complementarities in EU Telecommunications“, Blackwell Publishing, Oxford, 2005, p. 155 AND T. Thiemeyer, “Deregulation in the perspective of the German Gemeinwirtschaftslehre”, Journal of Institutional and Theoretical Economics, 1993, p. 405-418

¹⁰ J.M. Bauer, „Regulation and state ownership: conflicts and complementarities in EU Telecommunications“, Blackwell Publishing, Oxford, 2005, p. 155

¹¹ J.M. Bauer, „Regulation and state ownership: conflicts and complementarities in EU Telecommunications“, Blackwell Publishing, Oxford, 2005, p. 155

¹² J. Wallsten, “An Econometric Analysis of Telecommunication Competition, Privatization, and Regulation in Africa and Latin America.”, Stanford Institute for Economic Policy Research. Working Paper, July 2000.

¹³ R. Noll, “Telecommunications reform in Developing Countries”, Economic Policy Reform: The second stage. Ed. A. Krueger. Chicago, 2000

¹⁴ M.A. Noll, Telecommunication privatization: mixed progress“, Info, pp. 21-23

access. This means that prices often also deviated from prices under real market and competitive conditions. As competition is introduced, the government may be tempted to grant some form of protection for the incumbent in order to avoid staff reductions, reduced coverage in rural areas etc.¹⁵ If the incumbent is a 100%-privately held company, this is likely to be no problem.

Another problem with state held incumbents lies in the financing. A state owned company has the possibility to over-invest or invest in inefficient projects, which have a very low rate of return or a very high risk profile due to the following logic: If the investment is a success, the management of the incumbent gets the credits but if the investments turn out to be failures, the government will act as a “lender-of-last-resort”, financing the heavy losses of such projects. In addition, the state can also have other reasons acting as a “lender-of-last-resort” and thereby giving subsidies or “cheap” capital to the state owned incumbent.¹⁶

Further problems in the other direction may arise as regulation is introduced, e.g. there is the risk of a “vindictive” regulation, as the newly established regulatory authorities are under close scrutiny and may face strong pressure to “produce competition”. Such a vindictive regulation could then subsidise the competitors on the costs of the incumbent, e.g. through too low regulated access prices of the incumbent. In this situation, a privatised company could face problems with its shareholders and falling share prices. A state owned company would have fewer problems in such a situation.¹⁷

A related study has been conducted by Bauer. The study examines whether the dual role of the state as owner and regulator could be abused to disadvantage private competitors as well as if the dual role can help overcoming some of the shortcomings of the regulation of private firms. The results are that there is only weak evidence that (fully or partially) state owned incumbents were subject to a more favourable regulation of interconnection rates. However, this effect weakened as more independent regulators were established. The conclusion is therefore, that the presence of independent regulation, appeals processes, and competition review is a safeguard against capture of the regulator, by (fully or partially) public firms.¹⁸

2.4 Summary

The conclusions from these studies are that privatisation has a potential under certain conditions to increase the welfare of a country, as privately held companies tend to be more efficient. For the success of privatisation it is important though, that there is competition in the

¹⁵ J.M. Bauer, „Regulation and state ownership: conflicts and complementarities in EU Telecommunications“, Blackwell Publishing, Oxford, 2005, p. 153

¹⁶ See J.M. Bauer, „Regulation and state ownership: conflicts and complementarities in EU Telecommunications“, Blackwell Publishing, Oxford, 2005, p. 158

¹⁷ E.C. Perotti, „Credible privatization“, American Economic Review, 1995, pp 847-859

¹⁸ J.M. Bauer, „Regulation and state ownership: conflicts and complementarities in EU Telecommunications“, Blackwell Publishing, Oxford, 2005

markets and because competition needs regulation in several telecommunication markets, regulation is a crucial factor to consider. According to the different theories above, privatisation does not only need regulation, but regulation is also more efficient when the incumbent is privately held.

Our focus of the study is, in difference to the studies above, to look at the impact of liberalisation on competition itself. From literature studies we have the answer that privatisation needs competition (which in the telecommunication sector is only to be established through regulation and opening up of a monopoly), but does privatisation of the incumbent actually bring more competition, or does it tend to be harmful to competition?

3. Empirical Study: Privatisation and competition in the EU

3.1 Introductory remarks and methodological issues

In section 2, we found that privatisation requires sector-specific regulation. We also found indications, that privately held incumbents are more efficient and that the regulation will – according to the theory - be more efficient if the incumbent is privatised.

The focus of this study is not to research if privatisation needs competition and regulation, but if privatisation in itself has a positive impact on competition or not. While most studies have focused on countries which at the time of the studies didn't have sector-specific regulation or were just implementing it, this study will examine the outcomes of privatisation in a stable and regulated environment. By looking at the EU-Countries, where the regulatory framework is similar in 25 countries (we have not taken account of the accessions by Romania and Bulgaria), but the privatisation status of the incumbent is very different, we have the possibility to identify the outcomes of privatisation on the competition without distortions through introduction or altering of the sector-specific regulation.

We examine the time frame between 1999 and 2006. In this time frame, the EU-15-Countries all had similar regulation and the new EU countries were implementing it. In order to prevent distortions through the new EU countries, the empirical analysis will be made for the EU-25 and for the “old” EU-10 and the “new” EU-15 countries.¹⁹

We will measure the degree of competition by the price levels within the time frame. Thereby, we assume that competition will put pressure on prices. This is explained by the fact that the operators in a competitive market are constrained in their possibilities to have prices above the long run average incremental costs. If the prices would be higher, the customers would be incentivized to turn to another operator. If all operators in the market offer prices above the long run average incremental costs, there would be incentives for new operators to enter the

¹⁹ EU-25 refers to all member states as of 2006. EU-15 refers to the EU member states prior to 04/2004. EU-10 refers to the member states joining the EU on the 1st of Mai 2004.

market with prices equal to the long run average incremental costs, thereby winning all customers and still produce a satisfactory rate of return to the investors. Secondly, as can be seen in the essence of the results in section 2, more competition leads to more efficiency of the operators and thereby dynamically lowering the production costs. This rationale has also been identified in several empirical studies.²⁰

We also assume that competition leads to higher penetration rates. The correlation between competition and innovation is a highly debated one with a long history of academic research.²¹

“Economists have long been interested in the relationship between product market competition (PMC) and innovation. Both the theoretical IO and the more recent endogenous growth literatures tackle the issue. Standard IO theory predicts that innovation should decline with competition, as more competition reduces the monopoly rents that reward successful innovators. However, empirical work such as Geroski (1995), Nickell (1996) and Blundell, Griffith and Van Reenen (1999) has pointed to a positive correlation between product market competition and innovative output. Several theoretical approaches have been used in an attempt to reconcile the Schumpeterian paradigm with the evidence provided in these studies, generating various predictions as to the shape of the relationship between PMC and innovation.”

Interestingly, McNary concludes in his study on the telecommunications industry, that local fixed competition and mobile competition has a significantly positive impact on penetration rates, although privatisation has a negative impact.²² According to these and other findings we will assume that competition has a positive effect on the penetration rates and we will test the hypothesis, that more privatisation leads to higher penetration rates. As we look at new technologies, namely broadband, a positive outcome would imply that privatisation leads to higher penetration rates for new innovative services, and hence, is a driver for innovation and growth.²³

For this study we mainly used the implementation reports published annually by the European Commission. Thereby, the statistics is coherent for all researched countries.

²⁰ See among others: European Central Bank „INFLATION DIFFERENTIALS IN THE EURO AREA: POTENTIAL CAUSES AND POLICY IMPLICATIONS”, September 2003; AND K. Hassett, Z. Ivanova, L. Kotlikoff “Increased Investment, Lower Prices -- the Fruits of Past and Future Telecom Competition”, September 2003; AND S. Wallsten “An Empirical Analysis of Competition, Privatization, and Regulation in Africa and Latin America”, Stanford University and The World Bank, May 1999

²¹ P. Aghion, N. Bloom, R. Blundell, R. Griffith, P. Howitt, “Competition and Innovation: An Inverted U Relationship”, September 2002

²² R. McNary, “The Network Penetration Effects of Telecommunications Privatization and Competition“, Stanford University

²³ As the statistical tests in this study are carried through as two-tailed, we also test the adverse hypothesis, that privatisation leads to lower penetration rates and less market dynamics.

In 3.2, we will examine the status of privatisation in the EU member states. Thereby, the countries are ranked according to the degree of state ownership. In 3.3 we are examining if there is a correlation between state ownership and competition.

For the assessment, the Spearman Rank correlation has been used. The reason for calculating a rank correlation is that we assume that the influence of state ownership on the competition is not linear. By creating a regression model, the difference of one percentage point of ownership would be the same along the whole scale from 0% to 100 % state ownership. This is unlikely to be the case, as the difference between 49,5 % and 50,5 % is expected to be more crucial than the difference between 1% and 2 % state ownership. Still, it is to be expected that each reduction of state ownership, disregarding the actual state of ownership, will have an impact on the competition. Hence, the state ownership can be seen as an ordinal scale and therefore, the Spearman rank correlation has been used.

3.2 State ownership

The state ownership of the incumbents has a range from 0 % to 100 % within the EU. The table below shows the status from 1999 to 2006.

Country	Operator	State Ownership September 2006	State Ownership September 2005	State Ownership August 2004	State Ownership August 2003	State Ownership 2002	State Ownership 2001	State Ownership August 2000	State Ownership August 1999
Austria	Telekom Austria	27%	30%	47%	47%	47%	47%	75%	75%
Belgium	Belgacom	54%	50%	50%	50%	50%	50%	50%	50%
Denmark	TDC	0%	0%	0%	0%	0%	0%	0%	0%
France	France telecom	33%	35%	42%	54%	54%	54%	54%	64%
Germany	Deutsche Telekom	32%	38%	43%	43%	43%	43%	58%	65%
Greece	OTE	39%	36%	34%	34%	34%	43%	51%	51%
Ireland	Eircom	0%	0%	0%	0%	0%	0%	0%	0%
Italy	Telekom Italia	0%	0%	0%	3%	3%	4%	4%	3%
Luxembourg	P&T	100%	100%	100%	100%	100%	100%	100%	100%
Netherlands	KPN	0%	21%	21%	35%	35%	44%	44%	44%
Portugal	PT	0%	7%	6%	7%	7%	11%	11%	11%
Spain	Telefonica	0%	0%	0%	0%	0%	0%	0%	1%
Sweden	Telia	59%	59%	59%	70%	71%	70%	70%	100%
Finland	Sonera	59%	59%	59%	53%	53%	53%	53%	78%
UK	BT	0%	0%	0%	0%	0%	0%	0%	0%
Czech	Cesky Telekom	0%	51%	51%	51%	51%	51%	51%	51%
Estonia	Eesti Telekom	27%	27%	27%	27%	27%	27%	27%	27%
Cyprus	Cyta	100%	100%	100%	100%	100%	100%	100%	100%
Latvia	Latttelekom	51%	51%	51%	51%	51%	51%	51%	51%
Lithuania	Lietuvos Telekomas	2%	2%	6%	9%	10%	10%	15%	40%
Hungary	Matav	0%	0%	0%	0%	0%	0%	0%	0%
Malta	Maltacom	0%	60%	60%	60%	60%	60%	60%	60%
Poland	TPSA	4%	4%	3%	3%	23%	23%	35%	70%
Slovenia	Telekom Slovenije	63%	67%	67%	67%	67%	67%	67%	67%
Slovakia	Slovak Telecom	49%	49%	49%	49%	49%	49%	49%	100%

Table 1: State ownership 1999 to 2006

Source: EU Commission Implementation Reports; IBM, “2nd Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)”, 16th of December 2002; PWC Consulting, “1st Report on Monitoring of EU Candidate Countries (Telecommunication Services Sector)”, 25th of July, 2002

In order to test if there is a correlation between the state ownership and the competition in the national markets, two rankings of the countries have been made. In the first ranking, the

average percentage of state ownership between 1999 and 2006 was calculated. The country with the lowest average percentage was ranked as one. Hence the more state ownership in the last 8 years, the higher in the rank the country is. The second ranking was made similarly, but only regarding the years 2004-2006. The lowest share of state ownership gives the rank 1 etc.

Country	Operator	State Ownership (8-Year average)	Ranking 8-Years	State Ownership (3-Year average)	Ranking 3-Years
Austria	Telekom Austria	49,5%	16	34,9%	13
Belgium	Belgacom	50,4%	17	51,2%	20
Denmark	TDC	0,0%	1	0,0%	1
France	France telecom	48,7%	15	36,6%	15
Germany	Deutsche Telekom	45,6%	14	37,5%	16
Greece	OTE	40,1%	12	36,2%	14
Ireland	Eircom	0,2%	5	0,0%	1
Italy	Telekom Italia	2,3%	6	0,0%	1
Luxembourg	P&T	100,0%	24	100,0%	24
Netherlands	KPN	30,4%	11	14,0%	10
Portugal	PT	7,3%	7	4,5%	9
Spain	Telefonica	0,2%	4	0,0%	1
Sweden	Telia	69,7%	23	59,0%	21
Finland	Sonera	58,4%	21	59,0%	21
UK	BT	0,0%	1	0,0%	1
Czech	Cesky Telekom	44,6%	13	34,0%	12
Estonia	Eesti Telekom	27,1%	10	27,2%	11
Cyprus	Cyta	100,0%	24	100,0%	24
Latvia	Lattelekom	51,0%	18	51,0%	19
Lithuania	Lietuvos Telekomas	11,7%	8	3,2%	7
Hungary	Matav	0,0%	1	0,0%	1
Malta	Maltacom	52,5%	19	40,0%	17
Poland	TPSA	20,6%	9	3,6%	8
Slovenia	Telekom Slovenije	66,1%	22	65,4%	23
Slovakia	Slovak Telecom	55,4%	20	49,0%	18

Table 2: Ranking of the countries according to state ownership, with the lowest percentage ownership ranked as “1”. Telia and Sonera regards TeliaSonera after the merger. Equal percentage gives equal rank.

3.3 Indicators for competition

The rankings of the countries have been compared to different indicators of competition. For the study, we selected two price indicators, four indicators regarding the market shares of the incumbents, one indicator for penetration rates.²⁴

Percentage of subscribers using an alternative provider for direct access: This is an indicator for the competition in the market for direct access. Direct access refers to the direct access line(“last mile”). The higher the number of subscribers which have signed up to the alternative operators, the more market shares the incumbent has lost since the introduction of sector-specific regulation. This indicates the degree of competition according to the market concentration. A high market share also indicates a high value of the HHI-index, which is an indicator for concentration in the market and this leads to conclude that only weak / limited

²⁴ The source for the competition indicators is the 12th implementation report of the EU Commission.

competition exist.²⁵ The focus on the market shares for direct access is especially interesting, because it contains the complete customer relation, opposed to indirect access.

Incumbents market share in the fixed telephony market (by minutes): This is the same principle for an indicator as the previous one but for the voice call markets and not for access lines. It also includes indirect access as opposed to the market shares regarding direct access.

Fixed broadband retail lines market share by operator (Incumbent): This is the same principle for an indicator as the first one but for broadband markets instead of PSTN/ISDN-Markets. As broadband markets have been an evolving technology during the covered period of time, the new entrants have been able to compete for new customers instead of existing customers of the incumbent, the market situation for new entrants has been easier in these markets than in the PSTN/ISDN-markets. Therefore, the impact of privatisation may have been larger in the broadband markets. It has to be noted that this market is very dynamic and of course conditions have changed since this paper was presented in 2006.

DSL retail lines market share (Incumbent): This is the same principle for an indicator as the previous one but excluding CATV and other non-DSL technologies. This criterion was chosen as the market conditions for broadband access are very different in many countries - especially the role of cable networks plays a decisive role and strongly impacts the market assessment.

Broadband penetration rate: As broadband is a relatively new technology, a fast uptake is an indication that the markets are dynamic. As competition is broadly seen as a market driver for new technologies, this is an indicator for competition as well.²⁶

Average monthly expenditure (composite basket) residential users: The composite basket is used according to the OECD definition²⁷ and is calculated as a basket of PSTN/ISDN services including national and local calls as well as the monthly rental. This indicator demonstrates whether the prices are lower in countries with privatised incumbents. As competition limits companies in their attempts to increase the prices above the long run average incremental costs, it is likely that more competition leads to lower prices, or conversely, that less competition enables telecommunication providers to increase their prices.

A problem by measuring the prices in the retail markets is, that the retail prices have been regulated in some of the countries. One can expect, that competition leads to lower prices as excessive prices leads to market failure in a competitive environment (static effects) and more competition leads to a more efficient incumbent (dynamic effects). If the competition is fierce, the prices of the incumbent will be unregulated and the dynamic effects of competition will force the incumbent to reduce the prices below the regulated level. Hence, if there is an impact

²⁵ For a brief summary of the HHI-Index, see H. Ertl, H. McCarrell, "The State of Telecommunications Services", October 2002, P. 9

²⁶ Please refer to section 3 above

²⁷ The specifications are regarding to the EU Commission Implementation Reports (12th)

of privatisation on the retail prices, this is to be expected to have a larger impact than the regulation. This makes the study less biased through regulation.

Average monthly expenditure (composite basket) business users: This is same as the previous point but for the OECD basket for business customers. Business consumers are a separate group with a definitely other type of demand for services and therefore own conditions for the services they use.

3.4 Results based on the spearman rank correlation²⁸

Based on the ranking in section 3.2 and the competition indicators in 3.3, the correlation between the ranking and the indicators has been computed. The results can be found in Annex I. In the table below we show the results from the calculations regarding the complete sample. As can be seen, there is a significant correlation between the state ownership and the market shares of the incumbent but not for the other competition indicators. As a result, the less state ownership of the incumbent, the less market share incumbents have.

EU-25²⁹

Correlation is significant (Significance level 95%)	Correlation is not significant
- Direct Access market shares of the incumbent - Market shares of the incumbent in the voice call markets	- Broadband penetration rates and market shares of the incumbent - Price levels (OECD price baskets)

Table 3: Summary of the results for all EU Member states (EU-25)

It is interesting to examine if there is a difference by looking at the “old” and “new” member states separately, as they have a somewhat different history regarding the regulation of the telecommunication sector. The table below shows the results for the “new” member states (EU-10).

Correlation is significant (Significance level 95%)	Correlation is not significant
	- Direct Access market shares of the incumbent - Market shares of the incumbent in the voice call markets - Broadband penetration rates and market shares of the incumbent - Price levels (OECD price baskets)

Table 4: Summary of the results for new EU Member states (EU-10)

²⁸ The detailed results of the statistical computation can be requested from the authors.

²⁹ For a table regarding significance levels, see <http://www.sussex.ac.uk/Users/grahamh/RM1web/Rhtable.htm> OR <http://birdcentral.net/spearman.htm>

By looking at the EU-15 (table below), the results are similar, but here, as well as by looking at all member states, there is a correlation between state ownership and market shares in the markets for direct access.

Correlation is significant (Significance level 95%)	Correlation is not significant
- Direct Access market shares of the incumbent	- Market shares of the incumbent in the voice call markets - Broadband penetration rates and market shares of the incumbent - Price levels (OECD price baskets)

Table 5: Summary of the results for old EU Member states (EU-15)

Summing up the results of the spearman rank correlation, there is a significant correlation between market shares and state ownership for the EU-25, but not between state ownership and price levels or penetration (of which penetration has been used as an indicator for innovation). The correlation coefficients are though rather weak and above the 95 % significance level only for selected indicators. Hence, based on these calculations, the outcome on competition through privatisations of the incumbents is either non-existing or rather weak.

3.5 Descriptive analysis

In addition to the analysis based on the Spearman rank correlation, we will also show the data and the results in a few graphs. Below are selected graphs showing the correlation between state ownership and competition. The first graph show the average state ownership over the last 8 years (line) and the incumbent market shares in the voice call markets (bars). As can be seen in the graph, a correlation can be identified through a descriptive analysis, although the correlation is rather weak.

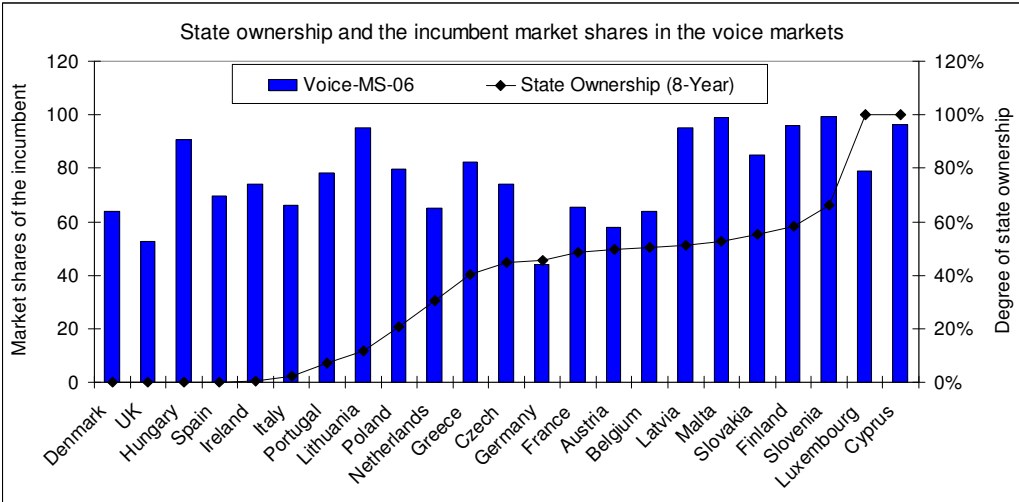


Figure 1: Descriptive analysis of the state ownership and incumbent market shares in the voice call markets

These rather weak results are confirmed by the descriptive analysis of the state ownership and the market shares (as the percentage of customers using an alternative operator for direct access) displayed below, which shows a much stronger correlation. According to the graph, there is less market concentration (measured by market shares) in countries with less state ownership of the incumbent.

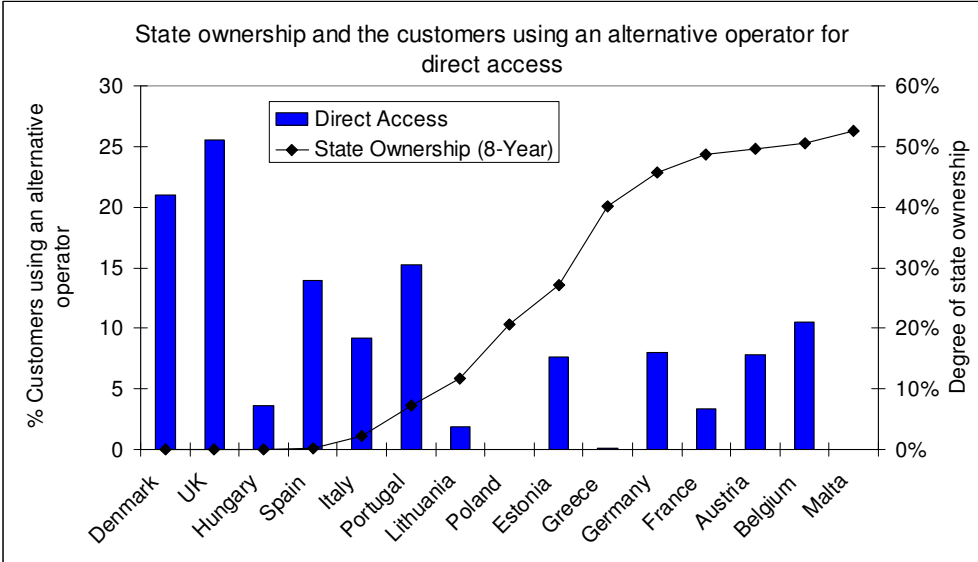


Figure 2: Descriptive analysis of the state ownership and market shares of the alternative operators in the markets for direct access

Interesting to see though, is that while there is a correlation for the market shares in the voice markets, there is none for the broadband and DSL-markets, as can be seen in the next figure:

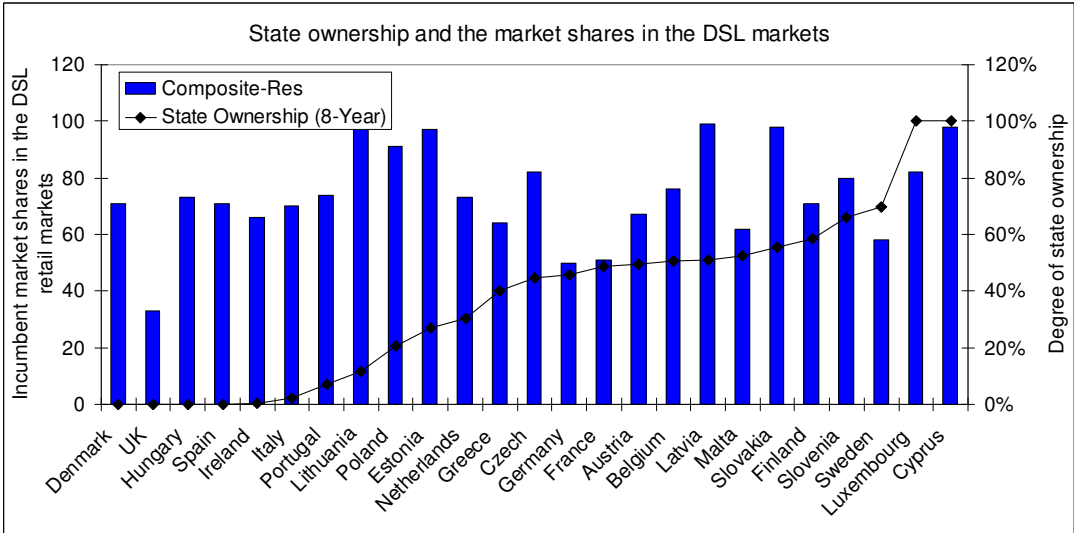


Figure 3: Descriptive analysis of the state ownership and incumbent market shares in the DSL markets

The next graph shows the state ownership (line) and the price levels for residential customers according to the OECD-basket. As shown by the Spearman rank correlation, it is difficult to see a significant correlation, although, a weak indication for lower prices in countries with more state ownership can be found. This indicates that there could be a risk of increasing prices due to a reduced state ownership of the incumbent.

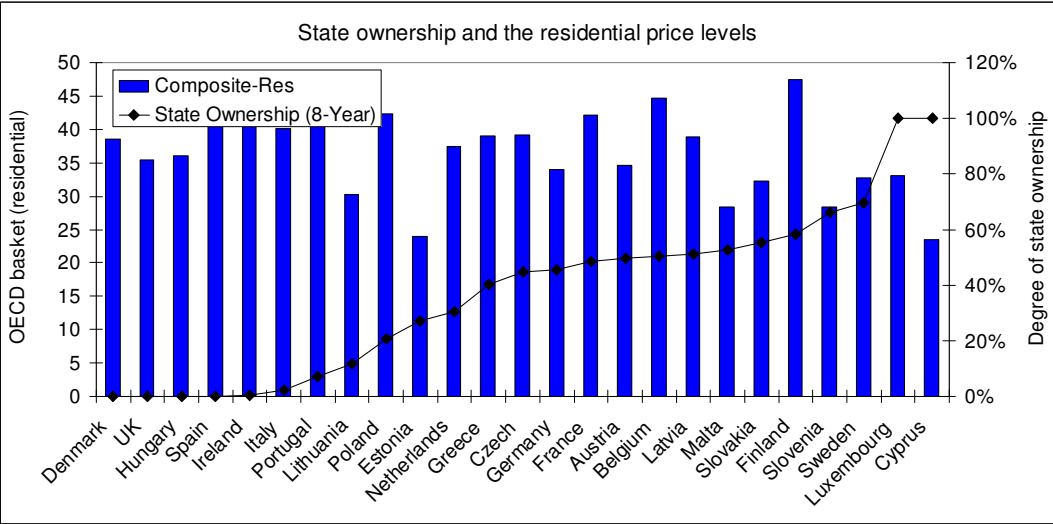


Figure 4: Descriptive analysis of the state ownership and the residential price levels

These conclusion regarding the residential customers likewise applies in the markets for business customers:

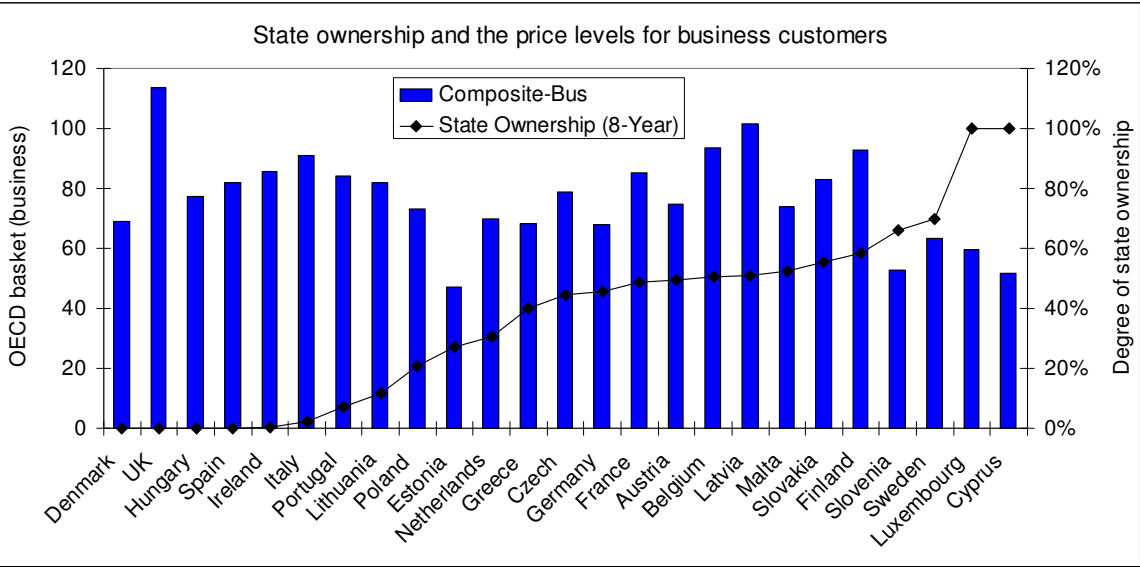


Figure 5: Descriptive analysis of the state ownership and the price levels for business customers

3.6 Results

The results of this study show no overall correlation between state ownership and price levels or developments in the dynamic broadband markets. There is a weak correlation found for the indicators measuring market shares in the markets for voice calls and direct access in countries with less state ownership. These results are though only partially applicable for EU-25 and not for EU-10 and therefore other effects like e.g. dissimilarities between the Eastern and Western European member states might also have an impact on the results. Hence, no conclusions can be made that there is a significant impact of privatisation or state ownership on the competition situation.

This article was first presented at the ITS biannual conference in Beijing in June 2006. In this previous version, which was based on figures published in the 11th implementation report and therefore from 2005 instead of 2006, no significant correlations could be found at all. For the impact of privatisation, this leads us to the conclusion that if there are effects of privatisation on market shares, this can be seen first after several years of time and that the effects are more significant and considerable in markets which are more static (as the voice markets), than in markets such as the broadband markets where the development is rather dynamic. However, based on the results in this research, such conclusions are too early to be made, which implies a need for further research in the future.³⁰

Previous studies have shown that state ownership brings positive effects, but that these are only produced if an advanced regulation has been implemented. These results are consistent with those in this study, although it seems that, if there are any effects, these are more significant in mature markets (i.e. the voice markets) than in dynamic markets (i.e. the broadband access markets).

4. Discussion

The empirical study conducted and displayed in chapter 3 of this paper shows that there might be a positive but weak correlation between the privatisation of telecommunication carriers and the development of competition in the countries researched. When there are any positive effects, these seem to mainly refer to the market shares in mature markets such as voice telephony. Still, the overall picture regarding the outcomes of privatisation on competition is that the effects are non-existing or rather weak.

This leads us to the conclusion that the fears that have been stated in the late 1990ies in Europe that the privatisations and the in many cases parallel opening up of the markets could be harmful to the development of competition did not hold true. As long as sector-specific regulation has been effectively introduced, there should be no worries regarding harmful effects to competition by privatising telecommunication operators. The fact that there

³⁰ As it might take time for the privatization and the implementation of sector-specific regulation to have an outcome on competition and the competition indicators, a dynamic analysis over time has not been made, as the privatization of the incumbents in several countries have been made within the last 10 years.

might be effects but only in voice markets is interesting. One should recall that those were the important markets at the time of market opening in the EU (1998) whereas broadband markets, where no significant statistical results have been found were more or less always open to competition as they developed after the sector reform in Europe in 1998.

On the other hand, there have also been worries that state ownership would be harmful to competition among others because new entrants were hesitant to believe that the government would be able to fulfil its “double role”, that is, being the regulator responsible for the establishment and development of competition on the one hand and on the other hand being the owner of the main market player (the incumbent) with the interest to maximise revenues and dividends respectively to support the “national champion” in other ways. According to the results in our research, these worries of the new entrants have not substantiated because there have not been any significant drawbacks from either privatisation or state ownership.

Regarding the development of competition (which is diverging according to the competition indicators), there must be other reasons explaining certain developments of competition. Besides technological issues (e.g. “disruptive technologies” bringing substantial changes to the market) the most crucial and influencing factor must be the regulatory environment. Competition would not have developed in European markets without a successful regulation, either in fixed voice call markets or the broadband markets.³¹

Overall, this means that regulation is a very crucial driver for competition and that the key regulatory decisions guide the market participants in their investments and the decisions for certain business models. According to the fact that several countries still have state owned incumbents and less competition in the voice markets, can either be explained through a less effective regulation (or a regulation less focused on creating competition) due to mixed incentives for the government, or through the fact that the potential new entrants have been hesitant in entering regulated markets where the state still has an interest in the performance of the incumbent.

One factor that could not be analysed in depth in this study is whether the “burst of the internet bubble” which took place in 2001 had an impact that lead to a significantly different result. One can argue that after this period of time it became much more difficult for countries to attract investments in telecommunications and therefore the results of our study are only valid for the specific period of time covered by the study. Although this might be an argument to be considered, we do not believe that it has a decisive influence on the overall assessment. The reason is that although there was a such a “burst” and although investments in all industries decreased after that time and investors became more prudent, the interest in telecommunications and the demand for services did not decrease. The demand for telecommunication services has increased ever since market opening and especially the demand for broadband markets and services shows that the belief of the customers in the

³¹ No conclusions can be made in this research, on which competition regulation is optimal, but it is clear that the European regulatory framework has been sufficient to prevent any influences from privatisations or state ownership on the competition

dynamic development of telecommunications markets has not decreased. Another reason to believe that the internet bubble does not affect the results is that a certain time has passed since the “bubble” was of relevance and during this time, over-investments have been reduced and inefficient companies have withdrawn from the markets or become “victims” of the market consolidation. Also, the bubble theory can explain the number of market entries, but not the success of new entrants, which has been assessed in this study. If for instance the new entrants are mistreated by a biased regulatory authority, they will have a weaker position in the market which cannot be explained by the ex-ante investment decisions of the investors and the investment bubble.

For those countries which are currently in the process of privatising their operators or which are going to take decisions on these matters soon, one can conclude that their decisions to privatise should be likely not to harm competition as long as there is effective regulation in place.

This study focuses only on the proportion of state ownership and not on the ownership structure after the privatisation (e.g. IPO or strategic investor). For instance if the market is in favour of an IPO where the current owner keeps his shares in order to create stability and reliability regarding the issued shares, the goals of maximising the price of the incumbent don't have to be weighted against less strong negative impacts on competition, as long as there is sufficient regulation in place.

An important remark to be made according to the results in this study is though, that the study only covers countries with a certain degree of sector specific regulation. According to previous studies, privatisation can only be successful, if there is an established regulation which is coherent according to the common sense that a private monopoly doesn't solve the problems arising from the lack of competition caused by a public monopoly.

One fear that arises when the incumbent is privatised is if the new owners will carry through restructuring programs leading to downsizing of the incumbent. In the past, competition went along with market growth. Therefore, privatisations of incumbent operators were not necessarily harmful to the labour markets and the regions where the incumbents are situated, because the privatisation implied market share losses for the incumbent, but no revenue losses as the market grew and in many cases this growth overcompensated for the market share loss. Whether this will remain identical in the future must be regarded as uncertain due to e.g. a higher level of saturation achieved today and more modest growth rates. Also, the higher efficiency of new technologies require less personnel in the field to operate and maintain the infrastructure.

Apart from what has been stated above there is one minor interesting point. The data shows, despite a weak correlation, that the prices tend to be lower in the countries with a larger proportion of state ownership. There could be several reasons for this:

- The so called high cost countries (northern and western Europe) are those which have gone further with privatisations.³²

³² This cannot be seen in the statistics for this study.

- Countries which have privatised more have also carried through the so called tariff rebalancing quicker than the other countries (respectively, due to the fact that privately own companies were involved, these were forced to speed up the rebalancing process).
- If there is a larger proportion of state ownership, the government will use its influence over the incumbent to achieve “social goals”, i.e. to keep the prices down in order to satisfy the consumers, which are also those who take account of such policies in their voting behaviour.

As the results for the prices are not significant though, this cannot be answered in this study but is a subject to further research.

5. Summary

This paper has looked at the impact of privatisations of telecommunication operators on the competition. In the past, extensive research on the outcomes of privatisations has been conducted. This paper contributes to this research by showing that in markets with a well functioning regulation, privatisations do not have a substantial impact on competition.

For the twofold role of the state (as being owner of the main operator and at the same time being the regulator) the results implies that this is also less relevant to countries within the EU or other countries which have implemented a comparable sector specific regulation. Whether a strong competition regulation would be able to safeguard competition cannot be concluded based in the peer group used in this study.

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